

is to be received and processed therethrough. Preferably, web guide plate 100 is provided within a range of 3.5 to 10 thicknesses (or more) of a web of material. In this manner, delivery of a web and articles there along is principally guided by guide strip 98, and little or no contact occurs between guide strip 198 and such web during a processing operation.

In the Claims

In response to the election/restriction requirement set forth in the Office Action dated May 7, 2002, Applicant respectfully elects Group I, claims 1-18, drawn to a trim press article handling apparatus, for examination herein.

Cancel claims 19-22 without prejudice.

Amend claims 5 and 17.

Add new claims 23-31.

Replace the claims with the following clean version of the entire set of pending claims, in accordance with 37 C.F.R. § 1.121(c)(1)(i). Cancel all previous versions of any pending claim.

1. A trim press article handling apparatus, comprising:
a frame;
a punch carried by the frame;
a die carried by the frame and cooperating in relative movement with the
punch to sever articles from a web; and
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a treadle carried for movement relative to the die, the treadle including a web guide member, a primary guide strip spaced from the guide member slightly greater than a thickness of the web, a secondary guide strip spaced from the guide member at least four thicknesses of the web and spaced apart from the primary guide strip, and an article detector carried by at least one of the primary guide strip and the secondary guide strip and operative to detect position of an article in the web by detecting the position of a protuberance in the web as the protuberance is conveyed between the primary guide strip and the secondary guide strip.

2. The article handling apparatus of claim 1 further comprising control circuitry communicating with the article detector and a drive motor operative to move the treadle, the control circuitry configured to receive an input signal from the article detector indicative of the position of a web-supported article relative to the punch and the die, and operative to control operation of the drive motor to synchronize movement of the web-supported article via controlled motion of the treadle.

3. The article handling apparatus of claim 2 wherein the article detector comprises an optical emitter and a photodetector, one of the optical emitter and the photodetector provided on the primary guide strip and the other provided on the secondary guide strip spaced apart from the primary guide strip, wherein movement of a protuberance in the web between the optical emitter and the photodetector generates an output signal

from the photodetector to the control circuitry indicative of the location of an article relative to the guide plate member.

4. The article handling apparatus of claim 2 wherein the article detector comprises an optical detector configured to generate a signal indicative of a change of state when a protuberance is detected with the optical detector.

5. (Amended) The article handling apparatus of claim 2 wherein the protuberance is an article formed in the web.

6. The article handling apparatus of claim 2 further comprising a drive wheel assembly for moving a web and articles, the drive wheel assembly comprising a pair of roller feed assemblies provided on opposed edges of a web.

7. The article handling apparatus of claim 6 wherein each of the pair of roller feed assemblies provides a servo pick assembly having a servo motor controllably driven by the control circuitry.

8. The article handling apparatus of claim 1 wherein the primary guide strip and the web guide member depend in a vertical orientation from the treadle and the punch and the die are supported for relative movement in a horizontal direction.

9. The article handling apparatus of claim 7 wherein a topmost portion of the primary guide strip is flared away from the web guide member to accommodate entrance feeding of the web during movement between the treadle and the frame.
10. The article handling apparatus of claim 1 wherein the web guide member comprises a web guide plate providing a stripper plate for a trim press.
11. An article conveying, guiding, and locating device, comprising:
a treadle including a web guide plate, a guide strip spaced slightly greater than a thickness of the web from the guide plate;
a web conveyor having a servo pick assembly and a servo helper assembly driven by a servo motor, and configured to move a web of articles wherein the servo pick assembly is carried by the treadle;
an article detector carried by the treadle and operative to detect location of an article in the web during movement of the web; and
a controller communicating with the drive motors and the article detector and operative to controllably regulate and synchronize operation of the servo pick assembly and the servo helper assembly in response to detected location of the article.
12. The device of claim 11 wherein the motor for the servo pick assembly comprises a servo motor carried by the treadle.

13. The device of claim 11 wherein the article detector detects location of an article in the web by optically detecting the location of a protuberance in the web provided at a known location in the web relative to an article.
14. The device of claim 11 wherein the web conveyor comprises a pair of wheels provided along each edge of the web.
15. The device of claim 14 wherein each pair of the wheels comprises a drive wheel and a follower wheel coaxing on opposite sides of the web, wherein the drive wheel is driven by a servo motor under control of the controller.
16. The device of claim 11 wherein one of the drive wheel and the follower wheel is selectively engaged and disengaged under control of the controller such that each pair of drive wheel and follower wheel is disengaged in anticipation of a severing operation to remove the articles from the web.
17. (Amended) The device of claim 11 wherein the guide strip is spaced apart from the guide plate less than four thicknesses of the web.
18. The device of claim 11 further comprising a canopy, wherein the servo helper assembly is carried by the canopy and the servo pick assembly is carried by the treadle, and wherein a web detector is provided between the servo helper assembly and the servo

pick assembly to detect proximity of the web relative to the canopy, and wherein the controller, in response to movement of web from the canopy, regulates operating speed of the motor for the servo helper assembly to adjust delivery speed at the servo helper assembly relative to delivery speed of the motor at the servo pick assembly.

Add new claims as follows:

23. (New) The article handling apparatus of claim 6 wherein each of the roller feed assemblies comprises a knock lever mechanism having a lever arm and a follower wheel, the knock lever mechanism carried by the treadle, the lever arm configured to contact the die as the treadle is moved towards a stationary platen carrying the die, and the follower wheel configured to retract from the respective drive wheel in response to contact of the lever arm with the die.

24. (New) The article handling apparatus of claim 23 wherein the knock lever mechanism comprises a kinematic linkage having a center pivot with the lever arm provided at one end of the kinematic linkage and the follower wheel provided at an opposite end of the kinematic linkage.

25. (New) The article handling apparatus of claim 24 wherein movement of the treadle toward the platen and die imparts contact of the lever arm with the platen that imparts retraction of the follower wheel away from the drive wheel that opens up a gap therebetween and releases a respective edge of a web carried therebetween to enable

lateral adjustment of the web and articles when centering the articles during a severing operation.

26. (New) The device of claim 15 wherein the treadle further comprises a knock lever mechanism having a knock lever arm configured to co-act with a stationary platen as the treadle is moved relative to the stationary platen during a severing operation so as to retract the follower wheel away from the drive wheel to release a web carried therebetween to enable lateral centering of articles carried in the web.

27. (New) The device of claim 26 wherein the knock lever mechanism comprises a kinematic linkage having a center pivot, wherein the lever arm is provided at one end of the kinematic linkage, and wherein the drive wheel is provided at an opposite end of the kinematic linkage.

28. (New) The device of claim 27 wherein a unique knock lever mechanism is provided along each edge of the web, wherein each knock lever mechanism is configured to disengage each follower wheel from the respective drive wheel as the treadle is moved towards a stationary platen during a severing operation.

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plate;

29. (New) An article centering and severing device, comprising:
a treadle including a web guide plate and a guide strip spaced from the guide

a web conveyor having a drive motor, a drive wheel, and a follower wheel configured to co-rotate with the drive wheel to move a web therebetween; and

a knock lever mechanism having a knock lever arm configured to carry at least one of the drive wheel and the follower wheel, the knock lever arm configured to engage a platen as the treadle is moved relative to the platen during a severing operation so as to move the one of the drive wheel and the follower wheel away from another of the drive wheel and the follower wheel to open up a gap therebetween and release a respective edge of the web during such severing operation.

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30. (New) The article centering and severing device of claim 29 wherein the knock lever mechanism comprises a kinematic linkage having a center pivot, wherein the lever arm is carried at one end of the kinematic linkage and a drive wheel is carried at an opposite end of the kinematic linkage.

31. (New) The article centering and severing device of claim 29 wherein a pair of knock lever mechanisms are provided one on each edge of the treadle adjacent each respective edge of a web carried therebetween.

A marked-up version showing amendments to any claims being changed is provided in one or more accompanying pages separate from this amendment in accordance with 37 C.F.R. § 1.121(c)(1)(ii). Any claim not accompanied by a marked-up version has not

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been changed relative to the immediate prior version, except that marked up versions are not being supplied for any added claim or canceled claim.